

# **EXHIBIT J**

**From:** Afanigenova, Alina  
**To:** Sheh, Anthony; shaelyn.dawson@mfo.com; \*jshaw@shawkeller.com; Karen Keller; Nate Hoeschen; Genevant Team; Arbutus MoFo  
**Cc:** Carson, Patricia A.; Wacker, Jeanna; McLennan, Mark C.; Appler, Hunter; Tabrizi, Maryam; Blumenfeld, Jack; Fagan, Brian P.; Murray, Travis; #KEModernaSpikevaxService  
**Subject:** RE: Arbutus v. Moderna, 1-22-cv-00252 - Moderna's Search Terms - Highly Confidential - Outside Counsel's Eyes Only  
**Date:** Friday, September 22, 2023 3:47:41 PM

**HIGHLY CONFIDENTIAL – OUTSIDE COUNSEL'S EYES ONLY**

Tony,

Below are the revised hit counts for Plaintiffs' proposed revisions, which are extremely overbroad, unduly burdensome, and not sufficiently targeted to relevant material, totaling 421,622 documents including family members. Although we do not agree that any of Plaintiffs' revisions are justified or proportional, in the interest of compromise and moving things along quickly, we've agreed to many of the searches, as indicated below. Based on the extreme number of documents that Plaintiffs are seeking, Moderna will be running email thread de-duplication. The remaining searches are extremely overbroad and will not be run unless Plaintiffs propose significant narrowing to relevant subject matter and/or time periods. We've included abbreviated objections below and are willing to discuss them with Plaintiffs, if needed.

Please get back to us no later than Tuesday COB with any final proposed revisions to the remaining searches.

Regards,  
Alina

#	Search Term	Start Date	End Date	Custodians	Hits + Family	Objections
I-01	(LNP OR (lipid W/1 nanoparticle*)) W/7 (mRNA OR messenger RNA)	28-Feb-2012	28-Feb-2022	8	118,208	Overbroad including w/r/t time periods; if Plaintiffs want longer time periods they should reduce the proximity connector or add further limiting terms.
I-01.1	((LNP OR (lipid W/1 nanoparticle*)) W/7 (mRNA OR messenger RNA)) AND (ratio* OR (lipid W/2 molar) OR (lipid W/2 content*) OR (lipid W/2 concentration*) OR (lipid W/2 conc) OR "###mol \u0025" OR "###mol\u0025" OR mRNA-1273* OR (mRNA W/1 1273*) OR Spikevax* OR Elasomeran* OR licens* OR agreement OR sublicense OR sublicens* OR sub-licens*)	28-Feb-2012	28-Feb-2022	HB	36,444	Overbroad; not limited to accused product.
I-02	(LNP OR (lipid W/1 nanoparticle*)) W/7 siRNA	28-Feb-2012	28-Feb-2022	8 + AT	10,136	Overbroad; if Plaintiffs want longer time periods they should reduce the proximity connector.
I-03	(SM-102 OR SM102 OR SM-000102) W/15 (mRNA-1273 OR Spikevax* OR Elasomeran*)	28-Feb-2016	28-Feb-2022	8 + AT	12,899	Accept
I-04	(SM-102 OR SM102 OR SM-000102) W/10 PEG*	28-Feb-2016	28-Feb-2022	8 + AT	34,634	Accept
I-05	(SM-102 OR SM102 OR SM-000102) W/10 cholesterol	28-Feb-2016	28-Feb-2022	8 + AT	23,293	Accept
I-06	(SM-102 OR SM102 OR SM-000102) W/10 DSPC	28-Feb-2016	28-Feb-2022	8 + AT	28,360	Accept
I-07	(SM-102 OR SM102 OR SM-000102) W/15 "###mol\u0025"	28-Feb-2016	28-Feb-2022	8 + AT + HB	7,605	Accept
I-08	(SM-102 OR SM102 OR SM-000102) W/15 (molar ratio OR lipid ratio OR ratio of lipids)	28-Feb-2016	28-Feb-2022	8 + AT + HB	1,471	Accept
I-09	(SM-102 OR SM102 OR SM-000102) W/15 (lipid W/2 ratio)	28-Feb-2016	28-Feb-2022	8 + AT + HB	3,409	Accept
I-10	(SM-102 OR SM102 OR SM-000102) W/10 (stability OR (tissue W/2 clearance) OR (mRNA W/2 delivery))	28-Feb-2016	28-Feb-2022	8 + AT	11,995	Accept
I-11	(SM-102 OR SM102 OR SM-000102) W/7 (mRNA OR messenger RNA)	28-Feb-2016	28-Feb-2022	8 + AT + HB	45,613	Overbroad; not limited to aspects of accused product relevant to asserted claims.
I-12	(SM-102 OR SM102 OR SM-000102) W/7 (LNP OR (lipid W/1 nanoparticle*))	28-Feb-2016	28-Feb-2022	8 + AT	33,962	Accept
I-13	(SM-102 OR SM102 OR SM-000102) W/10 (MC3 OR DLin-MC3-DMA)	28-Feb-2016	28-Feb-2022	8 + AT	21,796	Accept
I-14	(MC3 OR DLin-MC3-DMA OR ALC-0159) W/10 ((plasmid W/2 DNA) OR siRNA OR mRNA OR SM-102 OR SM102 OR SM-000102)	28-Feb-2016	28-Feb-2022	8 + AT + HB	49,186	Overbroad; encompasses comparisons to unclaimed lipids and there are 10 other SM-102 strings.
I-15	(entrap* OR encapsulat*) W/3 (assay* OR test* OR stud* OR efficienc* OR rate OR percent*)	28-Feb-2016	28-Feb-2022	8 + AT + HB	33,472	Accept
I-16	fully W/3 encapsulat*	28-Feb-2016	28-Feb-2022	8 + AT + HB	616	Accept
I-17	(Inex Protiva OR Genevant OR Tekmira OR Arbutus) W/10 (lipid OR LNP OR mRNA OR siRNA OR ratio* OR patent* OR (intellectual W/1 property*) OR IP OR licens* OR agreement OR sublicense* OR sub-licens*)	28-Feb-2016	28-Feb-2022	8 + AT + HB	3,840	Accept
I-18	(Acuitas OR AlCana OR Alnylam) W/5 (lipid OR LNP OR mRNA OR siRNA OR ratio* OR patent* OR (intellectual W/1 property*) OR IP OR licens* OR agreement OR sublicense* OR sub-licens*)	28-Feb-2016	28-Feb-2022	8 + AT + HB	7,149	Overbroad, especially considering attenuated relevance.
I-19	((cation* OR ioniz*) W/2 lipid) W/10 (mRNA OR siRNA)	28-Feb-2016	28-Feb-2022	8 + AT + HB	22,089	Overbroad; Plaintiffs should reduce proximity connector if they want additional custodians.

I-20	lipid W/10 (licens* OR agreement OR sublicense OR sublicens* OR sub-licens*)	28-Feb-2016	28-Feb-2022	8 + AT + HB	4,676	Accept
I-21	(LNP OR (lipid W/1 nanoparticle*)) W/10 (licens* OR agreement OR sublicense OR sublicens* OR sub-licens*)	28-Feb-2016	28-Feb-2022	8 + AT + HB	6,202	Accept
I-22	(*_gov OR *_mil) AND (52-227* OR "authorization and consent") AND (COVID* OR SARS-CoV-2 OR "mRNA-1273")	28-Feb-2016	28-Feb-2022	8 + AT + HB	683	Accept
I-23	(*_gov OR *_mil) AND "28 U.S.C. § 1498"	28-Feb-2016	28-Feb-2022	8 + AT + HB	500	Accept
I-24	W58P05-22-C-0017 OR (*0017 W/2 contract)	28-Feb-2016	28-Feb-2022	8 + AT + HB	4	Accept
I-25	W911QY20C0100 OR (*0100 W/2 contract)	28-Feb-2016	28-Feb-2022	8 + AT + HB	1,617	TBD - Moderna investigating potential false hits
I-26	75A50120C00034 OR (*0034 W/2 contract)	28-Feb-2016	28-Feb-2022	8 + AT + HB	8,436	TBD - Moderna investigating potential false hits
I-27	11,141,378 OR 11141378 OR 11,141,378* OR 11141378* OR ((pat OR pat* OR patent*) W/3 378) OR pat11141378*	28-Feb-2016	28-Feb-2022	8 + AT + HB	66	Accept
I-28	8,058,069 OR 8058069 OR 8,058,069* OR 8058069* OR ((pat OR pat* OR patent*) W/3 069) OR pat8058069*	28-Feb-2016	28-Feb-2022	8 + AT + HB	209	Accept
I-29	8,492,359 OR 8492359 OR 8,492,359* OR 8492359* OR ((pat OR pat* OR patent*) W/3 359) OR pat8492359*	28-Feb-2016	28-Feb-2022	8 + AT + HB	486	Accept
I-30	8,822,668 OR 8822668 OR 8,822,668* OR 8822668* OR ((pat OR pat* OR patent*) W/3 668) OR pat8822668*	28-Feb-2016	28-Feb-2022	8 + AT + HB	214	Accept
I-31	9,364,435 OR 9364435 OR 9,364,435* OR 9364435* OR ((pat OR pat* OR patent*) W/3 435) OR pat9364435*	28-Feb-2016	28-Feb-2022	8 + AT + HB	445	Accept
I-32	9,504,651 OR 9504651 OR 9,504,651* OR 9504651* OR ((pat OR pat* OR patent*) W/3 651) OR pat9504651*	28-Feb-2016	28-Feb-2022	8 + AT + HB	101	Accept
II-01	W911QY20C0100 OR (*100 W/3 (contract OR agreement))	1-Dec-2019	present	AT + HB	3,383	Accept
II-02	W58P05-22-C-0017 OR (*17 W/3 (contract OR agreement))	1-Dec-2019	present	AT + HB	5,451	Accept
II-03	(booster OR bivalent OR legacy OR prime) W/3 (agreement OR contract)	1-Dec-2019	present	AT + HB	8,673	Accept
II-04	1498 W/30 (patent OR clause OR agreement OR contract)	1-Dec-2019	present	AT + HB	1,034	Accept
II-05	52-227*	1-Dec-2019	present	AT + HB	1,764	Accept
II-06	52227*	1-Dec-2019	present	AT + HB	547	Accept
II-07	*hhs.gov	1-Dec-2019	present	AT + HB	39,873	Overbroad for reasons previously explained; disproportionate considering that Plaintiffs have offered minimal relevance bases.
II-08	*army.mil	1-Dec-2019	present	AT + HB	2,846	Accept
II-09	*mail.mil	1-Dec-2019	present	AT + HB	7,518	Accept
II-10	"authorization and consent"	1-Dec-2019	present	AT + HB	1,269	Accept
II-11	patent indem*	1-Dec-2019	present	AT + HB	990	Accept
II-12	Section 1498	1-Dec-2019	present	AT + HB	2	Accept
III-01	(Emergency Use Authorization OR EUA OR ((BLA OR Biologics License) W/5 125752*) OR ((IND OR Investigational New Drug) W/5 19745*)) AND ((lipid W/2 molar) OR (lipid W/2 content*) OR (lipid W/2 concentration*) OR (lipid W/2 conc.) OR (intellectual W/1 property*) OR target* OR chang* OR approv* OR lipid* OR LNP* OR composit* OR formulat* OR PEG* OR ratio* OR "##mol \u0025" OR "##mol\u0025" OR batch* OR encapsulat* OR patent*)	28-Feb-2016	28-Feb-2022	10	97,724	Overbroad; if it is intended to capture relevant aspects of regulatory filings for the accused product, no basis to go back to 2016.
III-01.1	(Emergency Use Authorization OR EUA OR ((BLA OR Biologics License) W/5 125752*) OR ((IND OR Investigational New Drug) W/5 19745*)) AND (IP OR licens* OR agreement OR sublicense* OR sub-licens* OR infring* OR mg/mL)	28-Feb-2016	28-Feb-2022	10	63,759	Overbroad; terms like "mg/mL" not sufficiently limited; many other licensing strings already capturing relevant ESI.
III-02	(SM-102 OR SM102 OR SM-000102 OR PEG* OR DSPC OR cholesterol OR phospholipid OR ((cation* OR ioniz*) W/2 lipid) OR LNP* OR (lipid W/1 nanoparticle*)) AND (ratio* OR (lipid W/2 molar) OR (lipid W/2 content) OR (lipid W/2 concentration) OR (lipid W/2 conc) OR "##mol\u0025")	28-Feb-2012	28-Feb-2022	10	137,944	Overbroad; should be limited to accused product considering there are 10+ other search strings broadly covering SM-102.
III-03	(mRNA-1273* OR (mRNA W/1 1273*) OR Spikevax* OR Elasomeran*) AND (ratio* OR (lipid W/2 molar) OR (lipid W/2 content) OR (lipid w/2 concentration) OR "##mol\u0025" OR patent* OR (intellectual W/1 property*) OR IP OR licens* OR agreement OR sublicense* OR infring* OR entrap* OR encapsulat* OR sub-licens* OR target* OR mg/ml OR Inex OR Protiva OR Genentech OR Tekmira OR Arbutus OR Acuitas OR AlCana OR Alnylam)	28-Feb-2016	28-Feb-2022	10	129,877	Overbroad; no proximity connectors; many alternate terms that aren't synonyms, far exceeding 10 allowable terms.
III-04	[REDACTED]	28-Feb-2016	28-Feb-2022	10	170,718	Not relevant for reasons previously explained; overbroad as it is not limited to accused product.
III-05	(mRNA* OR messenger RNA) W/5 (encapsulat* OR deliver*)	1-Jan-2011	28-Feb-2022	10	99,576	Overbroad; not limited to accused product; none of the asserted claims recite delivery.
III-06	[REDACTED]	28-Feb-2012	28-Feb-2022	10	9,451	Overbroad, especially

						considering tangential subject matter; not sufficiently targeted to seek relevant ESI; not limited to accused product.
III-07	[REDACTED]	28-Feb-2012	28-Feb-2022	10	126,609	Overbroad; not sufficiently limited to accused product or a reasonable time period considering Plaintiffs justified this term as being relevant to infringement/1498.
III-08	SNALP* OR stable nucleic acid-lipid particle OR stable nucleic acid-lipid particles OR SPL* OR stable plasmid lipid particle OR stable plasmid lipid particles	1-Jan-2011	28-Feb-2022	10	3,711	Accept
III-09	(Mark W/2 Murray) OR (Ian W/2 MacLachlan) OR Fougerolles OR <a href="mailto:tony@modernatx.com">tony@modernatx.com</a>	1-Jan-2011	28-Feb-2022	10	3,729	Overbroad; targets information concerning a non-inventor (TF) that Plaintiffs haven't alleged had any connection to the patents-in-suit, and not relevant to any claims or defenses. Other individuals not sufficiently limited to target ESI considering aspects of asserted claims; exceeds number of ESI terms Plaintiffs are entitled to. Note Moderna did not run new terms that Plaintiffs belatedly added when Plaintiffs should have been narrowing, not broadening.
III-10	(mRNA-1273* OR (mRNA W/1 1273*) OR Spikevax* OR Elasomeran* OR lipid or LNP [REDACTED]	28-Feb-2016	28-Feb-2022	10	38,036	Overbroad; not limited to accused product or even to specific assays.

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**Subject:** RE: Arbutus v. Moderna, 1-22-cv-00252 - Moderna's Search Terms

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Be cautious, particularly with links and attachments.

Alina,

Please see the attached correspondence. Thank you.

Best,  
Tony

Anthony Sheh | Associate | Williams & Connolly LLP | (202) 434-5436 | [vcard](http://www.williams.com)

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